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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/851,888 | 05/09/2001 | Richard M. Gibson | 4500-18 | 4296 |

7590 03/14/2003

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EXAMINER

TORRES VELAZQUEZ, NORCA LIZ

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1771

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/851,888 | GIBSON ET AL. | |
| | Examiner | Art Unit | |
| | Norca L. Torres-Velazquez | 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. It is noted that no-elected claims 6-8 and 16-17 drawn towards a knitted fabric construction have been rejoined. Therefore, claims 1-20 have been examined in the present Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 9-10 and 18-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While Applicants refer to the American National Standards Institute standard ANSI/ISEA-107 in the specification and claims, the specification does not address what are the minimum chromacity and luminance requirements for the dyed fabric of the present invention. It is noted that in the specification, Applicants mention that the standard specifies performance requirements for color, luminance, and reflective area; and also that there are several combinations of colors described in the standard depending upon the intended use. (Page 3, lines 7-22) Since these standards depend upon the intended use, it would not be possible to one skilled in the art to make a dyed fabric of the present invention that meets the minimum chromacity and luminance requirement without knowing it's intended use. (i.e. utility workers, firefighters, construction workers...)

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 6, 11-13, 16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by MONTGOMERY et al. (US 5,033,262).

MONTGOMERY et al. discloses a corespun yarn for forming fabric useful in the production of fire resistant apparel that includes a core of high temperature resistant fibers, core wrapper of low temperature resistant fibers surrounding and covering the core, and an outer sheath of low temperature resistant fibers surrounding and covering the core wrapper and the core. The reference teaches that the corespun yarn is knitted or woven into a fabric and subjected to a high temperature flame environment, the low temperature resistant fibers of the core wrapper and the outer sheath are charred but do not melt, drip or exhibit after flame or afterglow, and the charred portion remains in position around the core and maintain the same type of flexibility and integrity as the unburned fabric. (Abstract) Therefore, the fabric taught by the reference meets the flammability standards in the claims.

The reference further teaches that the corespun yarn of their invention provides fabric, for forming fire resistant safety apparel having the appearance, feel, dyeability, and comfort characteristics of conventional types of fabrics formed of conventional natural fibers and not including fire resistant characteristics. (Column 1, lines 62-68). The high temperature resistant fibers forming the core are aramid fibers or polybenzimidazole fibers. The low temperature

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resistant fibers of the core wrapper and the outer sheath may be either natural or synthetic, such as cotton, wool, polyester, *modacrylic*, or blends of these fibers. (Column 2, lines 6-12)

In Example 3, MONTGOMERY et al. the modacrylic fibers to form the outer sheath 13 in order to make possible to prepare and dye the fabric using standard International Orange dye formulations developed for 100% acrylic fabrics because the acrylic fibers are positioned on the outside of the yarn in the woven fabric. Comparable fire resistant fabrics of 100% Nomex, must either be producer-dyed or solvent dyed to achieve the International Orange colors at very high raw material cost. (Column 6, lines 28-40) It is noted that the use of cationic dyes to color acrylic and modacrylic fibers is well known in the art. While the present reference does not explicitly disclose the use of cationic dyes, it does not preclude from particularly using a cationic dye. It is further noted that the MONTGOMERY reference does teach the use of standard International Orange dye formulations developed for 100% acrylic fabrics, which are known for being either cationic dyes or their dye bases.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over MONTGOMERY et al. (US 5,033,262) as applied to claims 1-2, 6, 11-13, 16 and 20 above, and further in view of JONES et al. (US 3,670,068).

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MONTGOMERY et al. fails to explicitly disclose that the modacrylic material contains at least 50 percent acrylonitrile.

JONES et al. discloses a process for the preparation of shaped articles from aqueous dispersions of acrylonitrile-vinylidene chloride polymers. The reference teaches that a variety of modifying monomers have been used to prepare acrylonitrile-containing copolymers which are then spun into fibers. Those, which contain at least 85 percent acrylonitrile, are termed "acrylic fibers" and those, which contain 35 to 85 percent, are called "modacrylics". Modacrylics, which are now used commercially, contain either vinyl chloride or vinylidene chloride as the principal co monomer for the acrylonitrile. The present of large amounts of such halogen-containing monomer units in the copolymer imparts a high degree of flame resistance to the resulting composition. (Column 1, lines 4-33)

JONES et al. teaches that the copolymer of their invention must contain from about 45-55 percent by weight of acrylonitrile and, correspondly from 55-45 percent vinylidene chloride. (Column 2, lines 63-66) The reference further teaches that the filaments can be colored by incorporating pigments or dyes, which are not sensitive to nitric acid. (Column 4, lines 19-21) The JONES et al. reference further teaches the incorporation of copolymers in the fiber to impart a particular property such as improved dyeability. (Column 7, lines 52-54).

Since both MONTGOMERY et al. and JONES et al. are from the same field of endeavor, the purpose disclosed by JONES et al. would have been recognized in the pertinent art of MONTGOMERY et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the modacrylic material and provide it with about 45-55

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percent by weight of acrylonitrile with the motivation of imparting a high degree of flame resistance to the composition as disclosed by JONES et al. (Column 1, lines 4-33)

8. Claims 4-5, 8, 14-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over MONTGOMERY et al. (US 5,033,262) as applied to claims 1-2, 6, 11-13, 16 and 20 above.

While MONTGOMERY et al. does not explicitly teaches the tensile strength, tear resistance and bursting strength properties as claimed in the present application, the reference teaches the use of these fabrics in fire resistant safety apparel applications. Therefore, optimization of these properties would have been obvious at the time the invention was made.

It is well settled that determination of optimum values of cause effective variables such as tensile strength, tear resistance and bursting strength is within the skill of one practicing the art. In re Boesch, 205 USPQ 215 (CCPA 1980).

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

BLACKBURN et al. (US 4,266,940) – teaches the use of cationic dyes or their dye bases to color acrylic and modacrylic fibers. (Column 1, lines 33-35)

ENGLISH et al. (US 5,855,623)

SAYERS et al. (US 3,729,920)

TOMIBE et al. (US 4,336,028)

HAASE (US 3,925,016)

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 703-306-

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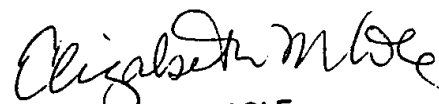
5714. The examiner can normally be reached on Monday-Thursday 8:30-3:00 pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

nlt

March 10, 2003


ELIZABETH M. COLE
PRIMARY EXAMINER